

Naval Education and  
Training Command

NAVEDTRA 80330  
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Nonresident  
Training Course  
(NRTC)



# Aircrew Survival Equipmentman 1 & C

Only one answer sheet is included in the NRTC. Reproduce the required number of sheets you need or get answer sheets from your ESO or designated officer.

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Although the words "he," "him," and "his" are used sparingly in this manual to enhance communication, they are not intended to be gender driven nor to affront or discriminate against anyone reading this material.

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# AIRCREW SURVIVAL EQUIPMENTMAN 1 & C

## NAVEDTRA 80330

Prepared by the Naval Education and Training Program Development  
Center, Pensacola, Florida

The text for this course is AIRCREW SURVIVAL EQUIPMENTMAN 1&C, NAVEDTRA 10330

Congratulations! By enrolling in this course, you have demonstrated a desire to improve yourself and the Navy. Remember, however, this self-study course is only one part of the total Navy training program. Practical experience, schools, selected reading, and your desire to succeed are also necessary to successfully round out a fully meaningful training program. You have taken an important step in self-improvement. Keep up the good work.

### HOW TO COMPLETE THIS COURSE SUCCESSFULLY

**ERRATA:** If an errata comes with this course, make all indicated changes or correction before you start any assignment. Do not change or correct the Rate Training Manual (RTM) or assignments in any other way.

**TEXTBOOK ASSIGNMENTS:** The RTM pages that you are to study are listed at the beginning of each assignment. Study these pages carefully before attempting to answer the questions in the course. Pay close attention to tables and illustrations because they contain information that will help you understand the text. Read the learning objective provided at the beginning of each chapter or topic in the text and/or preceding each set of questions in the course. Learning objectives state what you should be able to do after studying the material. Answering the questions correctly helps you accomplish the objective.

**BLACK DOT INFORMATION:** Black dots (●) may be used in the text and correspondence course to emphasize important or supplemental information and to highlight instructions for answering certain questions. Read these black dot entries carefully; they will help you answer the questions and understand the material.

**SELECTING YOUR ANSWERS:** After studying the text, you should be ready to answer the questions in the assignment. Read each question carefully, then select the BEST answer. Be sure to select your answer from the subject matter in the RTM. You may refer freely to the RTM and seek advice and information from others on problems that may arise in the course. However, the answers must be the result of your own work and decisions. You are prohibited from referring to or copying the answers of others and from giving answers to anyone else taking

the same course. Failure to follow these rules can result in suspension from the course and disciplinary action by the Commander, Naval Military Personnel Command.

**SUBMITTING COMPLETED ANSWER SHEETS:** It is recommended that you complete all assignments as quickly as practicable to derive maximum benefit from the course. However, as a minimum, your schedule should provide for the completion of at least one assignment per month--a requirement established by the Chief of Naval Education and Training. Failure to meet this requirement could result in disenrollment from the course.

**TYPES OF ANSWER SHEETS:** If you received Automatic Data Proceeding (ADP) answer sheets with this course, the course is being administered by the Naval Education and Training Program Development Center (NAVEDTRAPRODEVCCEN), and you should follow the instructions in paragraph A below. If you did NOT receive ADP answer sheets with this course, you should use the manually scored answer sheets attached at the end of the course and follow the direction contained in paragraph B below.

#### A. ADP Answer Sheets

All courses administered by the NAVEDTRAPRODEVCCEN include one blank ADP answer sheet for each assignment. For proper computer processing, use only the original ADP answer sheets. Reproductions are not acceptable.

**Recording Information on the ADP Answer Sheets:** Follow the "MARKING INSTRUCTIONS" on the answer sheet. Be sure that blocks 1, 2, and 3 are filled in correctly. This information is necessary for your course to be properly processed and for you to receive

credit for your work.

As you work the course be sure to mark your answers in the course booklet because your answer sheets will not be returned to you. When you have completed an assignment, transfer your answers from the course booklet to the answer sheet.

Mailing the Completed ADP Answer Sheets: As you complete each assignment, mail the completed ADP answer sheet to:

Commanding Officer  
Naval Education and Training  
Program Management  
Support Activity  
Pensacola, FL 32509-5000

The answer sheets must be mailed in envelopes, which you must either provide yourself or get from the local Educational Services Officer (ESO). You may enclose more than one answer sheet in a single envelope. Remember, regardless of how many answer sheets you submit at a time, the NETPMSA should receive at least one a month. NOTE: DO NOT USE THE COURSE COMMENTS PAGE AS AN ENVELOPE FOR RETURNING ANSWER SHEETS OR OTHER COURSE MATERIALS.

Grading: The NETPMSA will grade your answer sheets and notify you by letter of any incorrect answers. The passing score for each assignment is 3.2. Should you get less than 3.2 on any assignment, a blank ADP answer sheet will be enclosed with the letter listing the questions incorrectly answered. You will be required to redo the assignment and resubmit a new completed answer sheet. The maximum score that can be given for a resubmitted assignment is 3.2.

Course Completion: When you complete the last assignment, fill out the "Course Completion" form in the back of the course and enclose it with your last answer sheet. The NETPMSA will issue you a letter certifying that you satisfactorily completed the course. You should make sure that credit for the course is recorded in your service record.

Student Questions: Any questions concerning this course should be referred to the NETPMSA by mail using the address listed above or by telephone: AUTOVON 922-1771, or commercial (904) 452-1771.

#### B. Manually Scored Answer Sheets

If you did not receive ADP answer sheets with this course, it is being administered by your local command and you

must use the answer sheets attached at the end of the course booklet.

Recording Information on the Manually Scored Answer Sheets: Fill in the appropriate blanks at the top of the answer sheet. This information is necessary for your course to be properly processed and for you to receive credit for your work. As you work the course, be sure to mark your answers in the course booklet, because your answer sheets will not be returned to you. When you have completed an assignment, transfer your answers from the course booklet to the answer sheet.

Submitting the Completed Manually Scored Answer Sheets: As you complete each assignment, submit the completed answer sheet to your ESO for grading. You may submit more than one answer sheet at a time. Remember, you must submit at least one assignment a month.

Grading: Your ESO will grade the answer sheets and notify you of any incorrect answers. The passing score for each assignment is 3.2. Should you get less than 3.2 on any assignment, the ESO will not only list the questions incorrectly answered but will also give you a pink answer sheet marked "RESUBMIT." You will be required to redo the assignment and complete the "RESUBMIT" answer sheet. The maximum score that can be given for a resubmitted assignment is 3.2.

Course Completion: After you have submitted all the answer sheets and have earned at least a 3.2 on each assignment, your command will give you credit for this course by making the appropriate entry on Page 4 of your service record.

Student Questions: Any questions concerning the administration of this course should be referred to your ESO.

#### NAVAL RESERVE RETIREMENT CREDIT

This course is evaluated at 8 Naval Reserve retirement points. These points are creditable to personnel eligible to receive them under current directives governing retirement of Naval Reserve personnel. Points will be credited upon satisfactory completion of the entire course.

The date of completion for this course or units is the date processed through the NETPMSA ADP System, and not the day deposited in the mail. Answer sheets and "Course Completion" forms submitted by reserve personnel should be mailed at least 60 days prior to their anniversary date.

## COURSE OBJECTIVE

While completing this nonresident career course, the student will demonstrate his understanding of course materials by correctly answering items on the following: oxygen test, stands, carbon dioxide transfer equipment, sewing machine repair and survival equipment training.

Naval courses may include several types of questions—multiple-choice, true-false, matching, etc. The questions are not grouped by type but by subject matter. They are presented in the same general sequence as the textbook material upon which they are based. This presentation is designed to preserve continuity of thought, permitting step-by-step development of ideas. Not all courses use all of the types of questions available. The student can readily identify the type of each question, and the action required, by inspection of the samples given below.

**MULTIPLE-CHOICE QUESTIONS**

Each question contains several alternatives, one of which provides the best answer to the question. Select the best alternative, and blacken the appropriate box on the answer sheet.

**SAMPLE**

- s-1. Who was the first person appointed Secretary of Defense under the National Security Act of 1947?
1. George Marshall
  2. James Forrestal
  3. Chester Nimitz
  4. William Halsey

Indicate in this way on the answer sheet:

	1	2	3	4	
	T	F			
s-1	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---

**TRUE-FALSE QUESTIONS**

Mark each statement true or false as indicated below. If any part of the statement is false the statement is to be considered false. Make the decision, and blacken the appropriate box on the answer sheet.

**SAMPLE**

- s-2. All naval officers are authorized to correspond officially with any systems command of the Department of the Navy without their respective commanding officer's endorsement.
1. True
  2. False

Indicate in this way on the answer sheet:

	1	2	3	4	
	T	F			
s-2	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---

**MATCHING QUESTIONS**

Each set of questions consists of two columns, each listing words, phrases or sentences. The task is to select the item in column B which is the best match for the item in column A that is being considered. Items in column B maybe used once, more than once, or not at all. Specific instructions are given with each set of questions. Select the numbers identifying the answers and blacken the appropriate boxes on the answer sheet.

**SAMPLE**

In questions s-3 through s-6, match the name of the shipboard officer in column A by selecting from column B the name of the department in which the officer functions. Some responses may be used once, more than once, or not at all.

**A. OFFICER**

**B. DEPARTMENT**

- |                               |                           |
|-------------------------------|---------------------------|
| s-3. Damage Control Assistant | 1. Operations Department  |
| s-4. CIC Officer              | 2. Engineering Department |
| s-5. Disbursing Officer       | 3. Supply Department      |
| s-6. Communications Officer   |                           |

Indicate in this way on the answer sheet:

	1	2	3	4	
	T	F			
s-3	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---
s-4	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---
s-5	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	---
s-6	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	---

## Assignment 1

Textbook Assignment: "Liquid Oxygen Converter Test Stand 59A120". Pages 1-1 through 1-11.

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- Learning Objective: Recognize the operating characteristics and identify the maintenance requirements of the 59A120 liquid oxygen converter test stand.
- 
- 1-1. What rating level has the responsibility for maintaining liquid oxygen (LOX) converter test stands?
1. E-3 and 4
  2. E-4 and 5
  3. E-5 and 6
  4. E-6 and 7
- 1-2. Which of the following is NOT a part of the 59A120 test stand?
1. Differential pressure gage
  2. Linear flow element
  3. Bell jar
  4. Vacuum pump
- 1-3. How many linear flow elements can be found on the 59A120 test stand?
1. Six
  2. Five
  3. Three
  4. Four
- 1-4. When preparing the 59A120 test stand for use is divided into five separate tasks, which of the following tasks is NOT accomplished by the PR?
1. Installation
  2. Visual inspection
  3. Correction and preparation
  4. Leakage testing
- 1-5. Weekly inspections are performed on the 59A120 test stand. These inspections may be broken down into operating hours. what total number of operating hours is considered a week?
1. 100 hr
  2. 50 hr
  3. 35 hr
  4. 40 hr
- 1-6. Which of the following inspections requires you to zero the test pressure gage?
1. Daily
  2. Weekly
  3. Monthly
  4. Bimonthly
- 1-7. At what Inspection interval is the relief valve set?
1. Daily
  2. Weekly
  3. Monthly
  4. Every 6 months
- 1-8. What is the calibration requirement time interval on the 59A120 test stand?
1. Weekly
  2. Monthly
  3. Every 6 months
  4. Yearly
- 1-9. Which of the following cleaning agents is used to clean external parts of the 59A120 test stand?
1. MIL-C-81302, Type 1
  2. MIL-C-6903A, Type 1
  3. MIL-C-8939
  4. MIL-C-2613

- 1-10. Where are the test adapters stored for the 59A120 test stand?
1. In the storage compartment under the stand
  2. In the accessory tray
  3. Hung on the side of the test stand
  4. Inside the accessory toolbox
- 1-11. To remove dust and any foreign matter from the surfaces of the gage tester after removing the front panel on the 59A120 test stand, what maximum air pressure should you use?
1. 10 psig
  2. 15 psig
  3. 25 psig
  4. 50 psig
- 1-12. When you are using air pressure for cleaning, all interconnecting pipes, hoses, and fittings must be cleaned with what maximum air pressure?
1. 50 psi
  2. 160 psi
  3. 400 psi
  4. 500 psi
- 1-13. Which of the following chemicals is used to clean the terminals, of the Liquid Oxygen Quantity Gage Tester, on the 59A120 test stand?
1. Type I Freon
  2. Type II Freon
  3. Type I dry cleaning solvent
  4. Type II dry cleaning solvent
- 1-14. Who is responsible for calibrating the 59A120 test stand?
1. PRs, E-6 or above
  2. Personnel assigned to depot level maintenance
  3. On-site meteorology calibration team
- 1-15. What should you use to clean the O-ring that is installed in the bell jar?
1. Distilled water
  2. Denatured alcohol
  3. Natured alcohol
  4. Mild soap and water
- 1-16. After you clean the O-ring on the bell jar, it should be lubricated with which of the following?
1. MIL G 2489
  2. MIL G 27617
  3. MIL G 6903
  4. MIL G 2873
- 1-17. With of the following manuals gives information on the procedures for correction card preparation and calibration?
1. NAVAIR 13-1-6.4
  2. NAVAIR 13-1-6.5
  3. NAVAIR 17-15BC-2
  4. NAVAIR 17-17CAL-2
- 1-18. Which of the following components does NOT require a correction card?
1. PG-1
  2. PG-2
  3. FLM-1
  4. FLM-2
- 1-19. To prepare the correction cards, you must convert the actual liter-per-minute to
1. indicated millimeters
  2. psig
  3. inches of water
  4. inches of mercury
- 1-20. After converting the actual liter-per-minute, at what time will you enter the indicated flows?
1. When performing the leakage test
  2. When performing the daily test
  3. When calibrating the test stand
  4. Simultaneously
- 1-21. How many graphs are supplied with the calibration kit for the 59A120 test stand?
1. One
  2. Two
  3. Three
  4. Four
- 1-22. How can you be sure that you have the right graphs for the test stand you are going to calibrate?
1. The graphs will have the same serial numbers as the test stand
  2. The graphs are color coded
  3. All graphs are the same

- 1-23. When preparing the differential pressure gage correction card, you must connect the precision 0 to 100 in. H<sub>2</sub>O low-pressure gage to which of the following components?
1. Pressure gage calibration kit
  2. Relief valve
  3. Flowmeter 125-250 mm
  4. Bell jar bottom coupling
- 1-24. When you are preparing the differential pressure gage correction card, what initial pressure is used to compare the readings on the 0 to 100 in. H<sub>2</sub>O low-pressure gage and the differential pressure gage?
1. 25 in. H<sub>2</sub>O
  2. 50 in. H<sub>2</sub>O
  3. 100 in. H<sub>2</sub>O
- 1-25. To complete the differential pressure gage correction card after making the correction for 100 in. H<sub>2</sub>O, you must drop the pressure in what increments?
1. 10 in. H<sub>2</sub>O
  2. 20 in. H<sub>2</sub>O
  3. 25 in. H<sub>2</sub>O
- 1-26. To prepare the test pressure gage correction card, you must connect the bell jar bottom coupling to which of the following precision gages?
1. 0 to 100 psig
  2. 0 to 200 psig
  3. 0 to 500 psig
  4. Differential pressure gage
- 1-27. The pointer of the low-pressure test gage can be adjusted by which of the following methods?
1. Turning the adjustment screw on the back of the gage
  2. Turning the adjustment screw on the front of the gage
  3. Opening the oxygen supply valve
  4. Closing the oxygen supply valve
- 1-28. When preparing the correction card for the low-pressure test gage, you must use the bleed valve to reduce the pressure indicated on the precision-0-to-200-psig pressure test gage. What maximum increments are used to reduce the indicated pressure?
1. 2 psig
  2. 5 psig
  3. 25 psig
  4. 50 psig
- 1-29. When preparing the correction card for the low-pressure gage, you make your first correction reading at 14 psig. How many other readings are required?
1. Five
  2. Two
  3. Six
  4. Four
- 1-30. When preparing the linear flow element correction cards, you should start with which of the following lpm flow elements?
1. 0 to 50
  2. 0 to 100
  3. 0 to 150
  4. 0 to 200
- 1-31. By setting the oxygen supply valve V-6 to 150 lpm on the 500- to 750-mm calibration kit flow element, the flow, in. H<sub>2</sub>O, will be displayed on which of the following flowmeter indicators?
1. PG-1
  2. PG-2
  3. PG-3
  4. PG-4
- 1-32. Upon completion of any maintenance action on the 59A120 test stand, you must complete which of the following forms?
1. Ground Support Equipment Subcustody and Periodic Maintenance Record (OPNAV 4790/50)
  2. Ground Support Equipment Custody and Maintenance Record (OPNAV 4790/51)
  3. both 1 and 2 above
  4. VIDS/MAF
- 1-33. Which of the following manuals contains information on the 59A120 test stand?
1. NAVAIR 17-15BC-20
  2. NAVAIR 17-18BC-30
  3. NAVAIR 13-5-501
  4. OPNAV 4790.2A
- 1-34. Who has the responsibility to repair a defective flow element that consistently reads low?
1. Only personnel of the PR rate
  2. Only E-6 and above personnel of the PR rate
  3. Local AIMD personnel assisted by the calibration team

- 1-35. Which, if any, of the following gages, reads pressure applied to the item under test on the 59A120 test stand?
1. DF-1, 0 to 100 H<sub>2</sub>O
  2. PG-1, 0 to 160 psig
  3. PG-4, 0 to 15 psig
  4. None of the above
- 1-36. When you are testing the accessories section for leakage, a leak will be indicated on which of the following gages?
1. PG-1
  2. PG-2
  3. PG-3
- 1-37. When you test the accessories section on the 59A120 test stand, what is the allowable leakage?
1. 2 psig in 10 min
  2. 5 psig in 10 min
  3. 2 psig in 15 min
  4. 5 psig in 15 min
- 1-38. The relief valve V-11 shall relieve at no more than how many psig?
1. 50
  2. 90
  3. 110
  4. 120
- 1-39. The relief valve V-11 shall be leak tight at what minimum psig?
1. 50
  2. 90
  3. 100
  4. 110
- 1-40. In order to bleed the accessory section of the 59A120, which of the following valves is used?
1. V-11
  2. V-6
  3. V-5
  4. V-1
- 1-41. Any time the 0 to 160 psig pressure gage pegs, it is caused by which of the following parts?
1. Supply cylinder
  2. Supply pressure gage DF-1
  3. Pressure regulator R-2
  4. Pressure regulator R-1
- 1-42. With 1800 psi supply pressure applied, the pressure regulator R-1 is set to maintain what maximum pressure?
1. 110 psig
  2. 120 psig
  3. 140 psig
  4. 160 psig
- 1-43. When operating valves V-2, V-5, V-6, V-7, and V-10 on the 59A120 test stand, you should be cautious when closing them because they are manufactured from soft aluminum.
1. True
  2. False
- 1-44. Before attempting to set the pressure on the R-1 regulator, you must first loosen which of the following parts?
1. Needle valve on the top of the regulator
  2. Needle valve on the left side of the regulator
  3. Needle valve on the right side of the regulator
  4. Hex nut on the front of the regulator
- 1-45. What is the pressure range of the low-pressure test gage (PG-4) on the 59A120?
1. 0 to 15 psig
  2. 0 to 50 psig
  3. 0 to 100 psig
  4. 0 to 500 psig
- 1-46. What type of a gage is the 0-100-in. H<sub>2</sub>O differential pressure gage?
1. An aneroid operated
  2. A bellows operated
  3. A spring operated
  4. A gravity operated
- 1-47. The purpose of the low-pressure test gage is to read
1. pressure from the bell jar
  2. extremely low pressure from the item under test
  3. the relief valve pressure
  4. leakage of the relief valve

1-48. The low-pressure test gage is protected by a gage guard set at what pressure range?

1. 5 to 11 psig
2. 5 to 15 psig
3. 11 to 14 psig
4. 10 to 15 psig

1-49. If you have a 59A120 test stand that the differential pressure gage (DF-1) indicates low readings, your problem would most likely be located in which of the following areas?

1. Shut off differential pressure valve (V-8)
2. Low-pressure shut off valve
3. 0 to 160 psig oxygen pressure regulator (PG-4)
4. Differential pressure bleed valve (V-7)

1-50. The relief valve located in the bell jar has a range of

1. 3 to 5 psig
2. 5 to 7 psig
3. 5 to 15 psig
4. 110 to 120 psig

1-51. When you replace tubing on a 59A120 test stand, what is the minimum wall thickness for tubing used on high-pressure tubing?

1. 025
2. 032
3. 049
4. 052